

Science communication on social media - challenges and opportunities

Divulgação científica nas mídias sociais - desafios e oportunidades

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The scientist is a unique figure who evokes curiosity and intrigue. What do researchers do in their laboratory? In art and history, the scientist is generally identified as an eccentric person, with lots of knowledge and little social interaction due to their focus on experiments and reflections. For example, the images of icons such as Albert Einstein, with his scruffy hair or his tongue out; the example of “Dr. Victor Frankenstein” in literature or “Doctor Brown” (Doctor Emmett Lathrop), who controls the timeline in the “Back to the Future” film trilogy. But these are all representations of figures from the last century, as scientists, researchers and science itself have changed (and are changing) with the advent of social media, directly fostered by access to information via the internet. Scientists are getting closer and closer to the general population.

Research, scientific innovation and even jargon terms - such as “evidence”, “risk or protective factor” - are part of the population’s vocabulary from the beginning of this century. Cultural and sporting events dedicate some minutes or seconds to promoting science, such as the brief presentation of the exoskeleton from the “*Andar de Novo*” (“Walking Again”) project coordinated by Dr. Miguel Nicolelis during the opening of the Soccer World Cup (Brazil, 2014)¹. Even though they are brief, they are winning spaces for the dissemination of research results. Traumatic events - such as the pandemic and the consequences of climate change - have brought the voices of researchers to the open media, and numerous audiovisual communication channels are strengthening themselves by disseminating scientific results and translating technical language so the general public can comprehend it. Open science has been stimulated, especially during the COVID-19 pandemic, both by the exchange of information between researchers (Preprint, data sharing, etc) and by the need to accelerate the production of knowledge about the virus, the disease, its treatment and prevention (self-care and vaccines), as well as to inform the general public about how to deal with the pandemic itself.

In the 21st century, the researcher (scientist) is no longer isolated or distant from the population. With social media, the laboratory can be seen through “open doors”, whether through videos, images, audios or interviews that explain and inform the general population about the results, effects and limits of scientific studies.

In the acute phase of the COVID-19 pandemic, we health professionals and researchers were faced with the fragility of the community due to access to misinformation, which increased both panic and neglect of the seriousness of the disease caused by the virus. If, on one hand, researchers opened up their spreadsheets to speed up exchanges between research groups using resources from Open Science editorial policies, on the other hand, few researchers and clinicians were aware of the need to disseminate scientific knowledge to the lay population. The amount of misinformation was (and still is) high. There is a demand for researchers and clinicians to produce scientific dissemination materials on social media with quality information, recognizing biases, strengths and limits, not using jargon words (or translating them). During the pandemic, the global population was exposed and was vulnerable while having access to extremist sensationalist misinformation (panic versus denial), but despite vaccines, treatments and deaths, misinformation remains on social media. This scenario is repeated for the treatment of pain: there are proposals for miracle treatments that are sometimes simply ineffective and sometimes harmful, leading to worsening of the disease or inducing comorbidities.

Social media is now one of the main means of communication and information for the digitally literate population. These communication channels bring together teachers, researchers, international icons, people who occupy public office spots and politicians from governmental and non-governmental organizations. However, few professionals who are experts in their fields of work, study and research take the time to occupy this “space” on social media. There is an excess of information spreading false science, “welcoming” (utopian) messages that weaken vulnerable people, little (or no) ethics, financial risk, and risk to physical and mental health.

Misinformation is so spread worldwide that the World Health Organization has coined the term “infodemic” to warn the population about the abundance of information that makes it difficult to search for information from reliable sources and guidance². Scientific discourse needs to occupy social media in order to: disseminate innovation, explain the rigor from the formulation of the question to the interpretation and projection of research results, and teach the population about what science, scientific thought and knowledge are. Scientific dissemination begins with the general population being informed and comprehending that science has limits, that it requires flexibility to change behavior/thinking and that it needs to have the possibility of refuting hypotheses. Research defines its problem and challenges hypotheses. If there is no hypothesis, there is nothing to challenge, thus, it does not apply to scientific thinking.



BrJP's editorial policy proposes strategies to facilitate the dissemination of science published in our journal. Since BrJP's volume 5, number 3, year 2022, authors have been required to present three highlights of their articles, in addition to the keywords and the abstract. The article's highlights tend to motivate the reading of the manuscript and facilitate the scientific dissemination of the main messages and evidence presented by the researchers. In 2024 we are encouraging authors to publish "Graphical Abstracts", i.e. infographics highlighting the objective, method and main results presented in the article, as well as to produce simple science communication texts for publication on blogs such as Scielo in Perspective³.


Science is based on metrics, and these are not limited to method and data analysis. Researchers and scientific journals are also "analyzed" by citation metrics mechanisms, among others. Therefore, there are metrics for controlling the scientific dissemination of articles published and cited in social media, such as Altmetric (combines the number of readers in Mendeley and references in CrossRef), ImpactStory and Open Science Framework (synchronizes scientific production data through the ORCID platform). These metrics for access and dissemination via social media require the scientific journal and researchers to be indexed in other databases. BrJP has received other indexations in the last three months⁴, such as Google Scholar⁵, Miguilim (a directory of Brazilian electronic scientific journals) with Diamond Seal⁶, Latindex⁷, ScienceOpen⁸, CrossRef⁹, Mendeley¹⁰ and Scite¹¹.


Scientific dissemination is more than the dissemination of articles on social networks, blogs and other media. The publication of infographics, photos and videos in data repositories¹² complements and enhances the dissemination of the articles' results, as well as other materials such as PodCast and Video lessons to facilitate the dissemination of scientific knowledge and innovation. In short, the 21st century science demands that researchers also disseminate scientific innovation through social media communication channels. Researchers should not be confined in their laboratories, institutions and scientific associations. Science should not be a "closed club" with financial restrictions on publishing the results of a study or restricting access to articles.

Science and health research on pain treatment delimit their research problems specifically to propose improvements to the population.

Sincerely,

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